

REMARKS

Claims 1-37 are pending with entry of this amendment.

Claims 1-37 stand rejected.

Claim 22 has been amended to correct a typographical error.

The following sections address *in seriatim* the points in the office Action requiring response.

Rejection under 35 U.S.C. § 102(e)

At pages 2-6 of the Office Action, the Examiner improperly rejected Claims 17, 21, 22, 24-27, 29, 31 and 34-36 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Pub. No. 2006/0074544 to Morariu, et al. (“Morariu”).

Regarding Claim 17, and similarly Claims 21-22, 28-29 and 31, Morariu fails to disclose all of the subject matter recited therein and the rejection must be withdrawn.

Claim 17 recites, *inter alia*:

...selecting a plurality of planning areas...

(a) selecting the size of each planning area as a function of the amount of track and amount of proposed train traffic along the track in the planning area; and

(b) selecting the boundaries as a function of the portions of the network of track which is common to adjacent planning areas. (emphasis supplied).

In contrast, Morariu does not disclose the above noted portions of Claim 17. For example, paragraph [0015] of Morariu recites:

Traffic planning, whether optimizing or non-optimizing, can also be partitioned into static and dynamic planning. Static planning is the process of generating an initial movement plan from rail infrastructure data, data about the individual trains to be planned, train schedules, physical and

operational constraints, and other data pertinent to the movement of trains. The initial movement plan specifies the movements of all of the trains that will be running within a particular geographic region over a finite period of time. Once generated, the initial movement plan can be executed, as discussed above. Static planning implies that no modifications to the initial plan are ever made.

Contrary to the assertions of the Office, Applicant cannot find any recitation or disclosure in this paragraph of either **selecting a plurality of planning areas** and/or selecting **the size of the each planning area as a function of the amount of track and proposed traffic in the planning area**. Rather, this paragraph is merely a recital of the elements accounted for in traffic planning. Withdrawal of the rejection of Claim 17 based upon this deficiency alone is requested.

Further, with reference to paragraph [0050] of Morariu, it is clear that Morariu fails to disclose selecting the boundaries as a function of the portions of the network of track which is common to adjacent planning areas. For example, Morariu defines a “reservation” as planned usage of a track, which is further described as a time interval beginning when the first part of a train enters a particular track section, and ending when the last part of the train exits the particular track section. Morariu further discloses that a number of reservations make up a movement plan. There is, however, no disclosure in paragraph [0050] of Morariu regarding **selecting the boundaries** of a planning area as a function of the portions of the network of track which is **common to adjacent planning areas**, as recited in Claim 17.

Furthermore, the Office also improperly relied upon the subject matter of paragraph [0051] to support the disclosure of a local movement plan for each planning

area (as improperly applied to Claim 22). None of the teachings included in paragraph [0051] of Morariu disclose the subject matter recited in Claim 22, or any other claim directed to a plurality of planning areas. For example, paragraph [0051] and the following supporting paragraphs describe the generation of a movement plan by, *e.g.*, track speed limits; permanent speed limits; temporary speed limits, train type, power type, train height, length, weight, width and other characteristics, as well as intrinsic characteristics of the railroad devices and wayside equipment. All these characteristics are disclosed as reflected in a set of reservations comprising a movement plan and planning boundary. *See* paragraph [0051]. There is, however, no disclosure in Morariu of each and every element of Claim 22 (dividing a network into plural planning areas as a function of amount of track, each planning area being separated by boundary elements comprising portions of the network track which is common to adjacent planning areas; developing a local movement plan for each planning area; dividing each planning area into a plurality of dispatch areas; and providing a portion of the local movement plan corresponding to each dispatch area to a human dispatcher to implement the portion of the local movement plan).

For at least the reasons stated above, the Office has failed to provide a reference that anticipates the subject matter recited in Claim 17, and similarly Claims 21-22, 26, and 27-29, and those claims dependent thereon. Withdrawal of the rejection of Claims 17, 21, 22, 24-27, 29, 31 and 24-26 under 35 U.S.C. § 102(e) are hereby solicited.

Rejection under 35 U.S.C. § 102(b)

At pages 6-8 of the Office Action, the Examiner improperly rejected Claims 1-20, 22-25, 28-30, 32, 33 and 37 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,154,735 to Crone (“Crone”). Crone fails to teach each and every element of Claims 1-20, 22-25, 28-30, 32, 33 and 37; Applicant thus respectfully requests reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(b) premised upon Crone.

For example, Claim 1, recites, *inter alia*,

(a) **dividing the network into plural planning areas**, with each pair of adjacent planning areas sharing at least one common boundary element on track common to said adjacent pair of planning areas;.

(b) **developing a local movement plan for each planning area independently of the movement plan for other planning areas** to control the movement of trains into and out of the selected boundary elements associated with the planning area; and

(c) **evaluating the local movement plans for adjacent planning areas to identify conflicts** at the respective boundary element. (emphasis supplied).

In contrast, Crone discloses a system including the use of an optimizing scheduler that schedules aspects of a rail system, taking into account the laws of physics, the policies of the railroad, the work rules of the personnel, the actual contractual terms of the contracts to the various customers and any boundary conditions or constraints which govern the possible solution or schedule such as passenger traffic, hours of operation of some of the facilities, track maintenance, work rules, etc. *See* Crone, 6:35-43.

Upon determination of a schedule, a movement plan may be created to control movement of a train. This movement plan may be used to guide the manual dispatching of trains and controlling of track forces, or provided to the locomotives so that it can be implemented by the engineer or automatically by switchable actuation on the locomotive. *See Crone, 7:8-16.*

The planning system is hierarchical in nature in which the problem is abstracted to a relatively high level for the initial optimization process, and then the resulting course solution is mapped to a less abstract lower level for further optimization. Statistical processing is used at all levels to minimize the total computational load, making the overall process computationally feasible to implement. An expert system is used as a manager over these processes, and the expert system is also the tool by which various boundary conditions and constraints for the solution set are established. The use of an expert system in this capacity permits the user to supply the rules to be placed in the solution process. *See Crone, 7:50-60.*

Crone, however, is silent regarding dividing a network into plural planning areas, developing a local movement plan for each planning area independently of other planning areas, and evaluating the local movement plans for adjacent planning areas to identify conflicts. Rather than disclosing these elements, the portions of Crone cited by the Action disclose methods of block control of a train and modeling thereof. For example, Crone discloses both moving block control and fixed block control. In moving block control, a forbidden zone including the train and a length of track in front of and along

the route of the train is modeled and associated with each train in the network. As trains are advanced incrementally in time in the model, the respective moving blocks are analyzed for conflict and the trains are controlled accordingly. *See* Crone, 30:35-58. In fixed block control, a train checks a railway signaling model to determine if a signaling block (*i.e.*, fragment track structures generally based upon rail topology) is occupied or unoccupied. If occupied, there exists a conflict and a command may be given to the train such as a “stop” or “restricted speed”. *See* Crone, 30:59-31:60.

Again, none of the sections of Crone referenced by the Office provide a disclosure of dividing a network into plural planning areas, developing a local movement plan for each planning area independently of other planning areas, and evaluating the local movement plans for adjacent planning areas to identify conflicts. Thus, it is clear that Crone fails to teach each and every element of independent Claim 1. For the same reasons discussed above, it is also clear that Crone fails to teach each and every element of independent Claims 8, 12, 17, 19, 22, 28 and 29. Reconsideration and withdrawal of the rejection of independent Claims 1, 8, 12, 17, 19, 22, 28 and 29 under 35 U.S.C. § 102(b) are hereby respectfully solicited.

Claims 2-7 and 32; Claims 9-11 and 33; Claims 13-16; Claim 18; Claim 20; Claims 23-25; Claim 30; and Claim 37 are ultimately dependent upon independent Claims 1, 8, 12, 17, 19, 22, 29 and 28, respectively. Claims 1, 8, 12, 17, 19, 22, 29 and 28 are in condition for allowance. Without regard for the additional patentable elements

contained therein, reconsideration and withdrawal of the rejection of Claims 2-7, 9-11, 13-16, 18, 20, 23-25, 30, 32, 33 and 37 are hereby solicited.

Conclusion

Reconsideration and withdrawal of the rejection of Claims 1-37 are hereby respectfully requested.

The Applicant believes that the present application is in condition for allowance and, as such, it is earnestly requested that Claims 1-37 be allowed to issue in a U.S. Patent.

The appropriate extension fees are submitted herewith; however, should any additional fees be necessary in connection with the filing of this paper, or if a petition for extension of time is required for timely acceptance of the same, such a petition is made and the Office is authorized to charge such fees to Deposit Account No. 04-1679.

Respectfully submitted,



Patrick D. McPherson
Ryan T. Hardee

Reg. No. 46,255
Reg. No. 57,515

DUANE MORRIS LLP
1667 K Street, N.W., Suite 700
Washington, DC 20006
Telephone: (202) 776-7800
Telecopier: (202) 776-7801

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